175 Watts
RCL Series

- 200 W Peak Rating
- Up to 120 W Convection–cooled
- IT, Industrial and Medical Safety Approvals
- Class I & Class II Installations
- Single, Dual, Triple and Quad Outputs
- Connector & Mechanical Options
- 3 Year Warranty

Specification

Input

Input Voltage	• 85-264 VAC (120-370 VDC) (see note 3)
Input Frequency	• 47-63 Hz; 400 Hz[1]
Input Current	• 2.1 A max at 115 VAC 0.9 A max at 230 VAC
Inrush Current	• 17 A max at 115 VAC, 35 A max at 230 VAC, cold start at +25 °C
Power Factor	• >0.9
Earth Leakage Current	• 120 µA max at 264 VAC / 60 Hz 340 µA max at 115 VAC / 400 Hz
Input Protection	• Internal T3.15 A/250 V in line and neutral

Output

Output Voltage	• See models and ratings table and note 2
Output Voltage Trim	• ±10% output 1, outputs 2-4 track by same percentage
Initial Set Accuracy	• ±1% of nominal at 50% load
Minimum Load	• See models & ratings table
Start Up Delay	• 2 s max
Start Up Rise Time	• 100 ms max
Hold Up Time	• 20 ms min at nominal low line & max power
Drift	• <±0.2% after 20 mins warm up
Line Regulation	• ±0.5% of nominal over full input range
Load Regulation	• PQ42 & 43: V1 & V2 ±3%, V3 & V4 ±5% of nominal, all other models: V1 ±1%, V2, V3 & V4 ±5% of nominal
Transient Response	• 4% max deviation, recovery to within 1% in 500 µs for a 25% load change at 1 A/µs
Ripple & Noise	• 50 mV (Vo ≤5 V), 120 mV (Vo = 12, 15 V), 200 mV (Vo = 24, 48 V). Measured pk-pk with a 20 MHz bandwidth
Overvoltage Protection	• 115-140% on V1 only, recycle input to reset
Overtemperature Protection	• Fitted with auto restart
Overload Protection	• 110-125% - Primary side power limiting with auto recovery. Constant current limit for single output models and foldback current limit for multi output models. V3 & V4 PTC resetting fuses
Temperature Coefficient	• 0.02%/°C

Notes

1. Safety approvals cover frequency 47-63 Hz.

General

Efficiency	• 80-90% depending on model
Isolation	• 4000 VAC Input to Output 2 x MOPP (1 x MOPP Class II), 1500 VAC Input to Ground, 1 x MOPP 1500 VAC Output to Ground open frame 500 VAC Output to Ground U channel & covered
Switching Frequency	• PFC 75 kHz typical, PWM 60 kHz typical
Signals	• Power fail - open collector output referenced to 0 V sense
Remote Sense	• See application notes
Remote On/Off	• See application notes
MTBF	• 385 kHrs typical to MIL-HDBK-217F at 25 °C, GB
Power Density	• 7.1 W/in^3

Environmental

Operating Temperature	• -10 °C to +50 °C at full power, derate to 50% power at +70 °C
Operating Humidity	• 5-95% RH, non-condensing
Storage Temperature	• -20 °C to +85 °C
Operating Altitude	• 3000 m
Shock	• 30 g peak, half sine, 6 axes
Vibration	• 2 g rms, 5-500 Hz, 3 axes

EMC & Safety

Emissions	• EN55011/22 class B conducted, class A radiated
Harmonic Currents	• EN61000-3-2 class A EN61000-3-2 class C for loads ≥20%
Voltage Flicker	• EN61000-3-3
ESD Immunity	• EN61000-4-2, level 3 Perf Criteria A
Radiated Immunity	• EN61000-4-3, 10 V rms 80% mod, Perf Criteria A
EFT/Burst	• EN61000-4-4, level 3 Perf Criteria A
Surge	• EN61000-4-5, installation class 3 Perf Criteria A
Conducted Immunity	• EN61000-4-6, level 3 Perf Criteria A
Dips & Interruptions	• EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms, Perf Criteria A, B, B EN60601-1-2, 30% 500 ms, 60% 100 ms, 100% 10 ms, 100% 5000 ms, Perf Criteria A, A, A, B - 230 VAC Contact sales for 115 V operation
Safety Approvals	• EN60601-1, ANSI/AAMI ES60601-1, CSA22.2 No.60601-1 per cUL, Including Risk Management, UL60950, EN60950

Models and Ratings

Total Power			Output 1				Output 2[5,6]				Output 3[6,8]			Output 4[6,8]			Model Number
Max[7]	Peak[1]	Conv.[4,5]	V	Min	Max[4,5]	Peak[1]	V	Min	Max	Peak[1]	V	Min	Max	V	Min	Max	
175 W	204 W	120 W	12.0 V	0.0 A	14.5 A	17.0 A											RCL175PS12
175 W	195 W	120 W	15.0 V	0.0 A	11.6 A	13.0 A											RCL175PS15
175 W	200 W	120 W	24.0 V	0.0 A	7.2 A	8.3 A											RCL175PS24
175 W	200 W	120 W	28.0 V	0.0 A	6.2 A	7.1 A											RCL175PS28
175 W	202 W	120 W	48.0 V	0.0 A	3.6 A	4.2 A											RCL175PS48
175 W	200 W	110 W	+5.0 V	1.5 A	15.0 A	-	+12.0 V	0.1 A	8.3 A	10.4 A							RCL175PD22
175 W	200 W	110 W	+5.0 V	1.5 A	15.0 A	-	+12.0 V	0.1 A	6.3 A	8.4 A	F 12 V	0.1 A	2.0 A				RCL175PT31
175 W	200 W	110 W	+5.0 V	1.5 A	15.0 A	-	+15.0 V	0.1 A	4.6 A	6.6 A	F 15 V	0.1 A	2.0 A				RCL175PT32
175 W	200 W	90 W	+5.0 V	1.5 A	15.0 A	-	+3.3 V	0.1 A	15.0 A	-	F 15 V	0.1 A	2.0 A	F 15 V	0.1 A	2.0 A	RCL175PQ43
175 W	200 W	90 W	+5.0 V	1.5 A	15.0 A	-	+12.0 V	0.1 A	5.5 A	7.6 A	F 5 V	0.1 A	2.0 A	F 12 V	0.1 A	2.0 A	RCL175PQ44
175 W	200 W	90 W	+5.0 V	1.5 A	15.0 A	-	+15.0 V	0.1 A	4.0 A	6.0 A	F 5 V	0.1 A	2.0 A	F 15 V	0.1 A	2.0 A	RCL175PQ45
175 W	200 W	90 W	+5.0 V	1.5 A	15.0 A	-	+24.0 V	0.1 A	3.2 A	5.0 A	F 12 V	0.1 A	2.0 A	F 12 V	0.1 A	2.0 A	RCL175PQ46
175 W	200 W	90 W	+5.0 V	1.5 A	15.0 A	-	+24.0 V	0.1 A	3.0 A	5.0 A	F 15 V	0.1 A	2.0 A	F 15 V	0.1 A	2.0 A	RCL175PQ47

Notes

1. *Peak rating can be taken for 5 seconds in every minute. Average power not to exceed maximum power.*
2. *User-accessible fan supply rated at 12 V at 350 mA (not available on fan-cooled units).*
3. *For operation at 85 VAC output power is derated to 95%.*
4. *Output 1 10 A max convection-cooled.*
5. *20 A max from output 1 and 2 combined convection-cooled.*
6. *A minimum load of 100 mA is required on output 2, 3 and 4 to maintain the regulation figures.*
7. *12 CFM airflow required for maximum power.*
8. *Outputs 3 & 4 are floating, they can be connected externally for positive or negative output.*
9. *Connector kits and cable harnesses available. Consult sales for options.*

Pin Connectors

INPUT CONNECTOR - P1	
Pin	Function
1	Live
2	N/C
3	Neutral

P1 is a 3-way 0.156" pitch square pin header
Molex housing 09-91-0300 pins 08-50-0106 (24-18 AWG) 08-50-0108 (28-22 AWG)

OUTPUT CONNECTOR - P2	
Pin	Function
1	+Output 1
2	+Output 1
3	+Output 1
4	0 V
5	0 V
6	0 V
7	0 V
8	0 V
9	0 V
10	+Output 2
11	+Output 2
12	+Output 2
13	-Output 3
14	+Output 3
15	-Output 4
16	+Output 4

SIGNALS CONNECTOR - P3	
Pin	Function
1	Remote On/Off
2	+Sense
3	-Sense
4	PF signal
5	0 V fan supply
6	+12 V fan supply

P3 is a 6-way 0.1" pitch square pin header
Molex housing 22-01-2065 pins 08-50-0032 (30-22 AWG)

For mating connectors, use pinouts as detailed in this datasheet. May not match manufacturers mold marks on connector.

Application Notes

Remote Sense - V1 only, compensates for 0.5 V or 10% whichever is lower.

Power Fail - Open collector output referenced to 0 V sense (when using the power fail signal, -Sense must be connected to 0 V).

Remote On/Off - Connect pin 1 (P3) to 0 V to disable unit (optional remote enable specify suffix '-E' with the model number). Applying a logic '0' will also disable the unit.

Options

- For U-channel version, add suffix '-U' to the model number.
- For U-channel version with cover kit, add suffix '-C' to the model number.
- For U-channel version with fan cover kit, add suffix '-F' to the model number.
- For screw terminals (output connector P2 only). Contact Sales.
- For versions with remote enable. Contact Sales.
- For foldback current limit on single output models, contact sales.
- For constant current limit (output 1 & 2) on multi-output models, contact sales.

Connector Information

For all formats, output connector P2 as follows:

Single Output Models:
6-way 0.156" pitch square pin header
Molex housing 09-91-0600
Pins 08-50-0106 (24-18 AWG) 08-50-0108 (28-22 AWG)

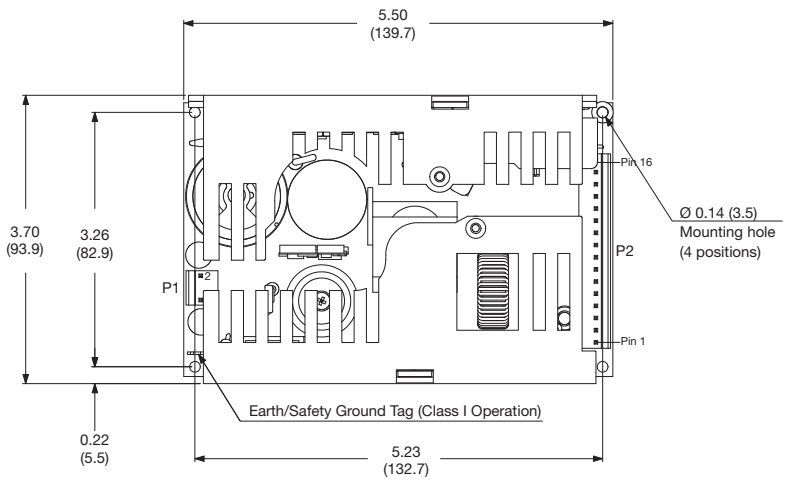
Dual Output Models:
12-way 0.156" pitch square pin header
Molex housing 09-91-1200
Pins 08-50-0106 (24-18 AWG) 08-50-0108 (28-22 AWG)

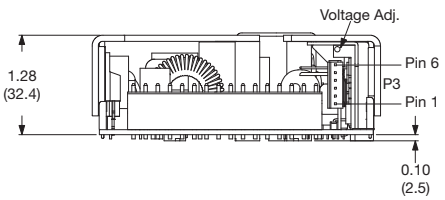
Triple Output Models:
14-way 0.156" pitch square pin header
Molex housing 09-91-1400
Pins 08-50-0106 (24-18 AWG) 08-50-0108 (28-22 AWG)

Quad Output Models:
16-way 0.156" pitch square pin header
Molex housing 09-91-1600
Pins 08-50-0106 (24-18 AWG) 08-50-0108 (28-22 AWG)

Mechanical Details

Open Frame

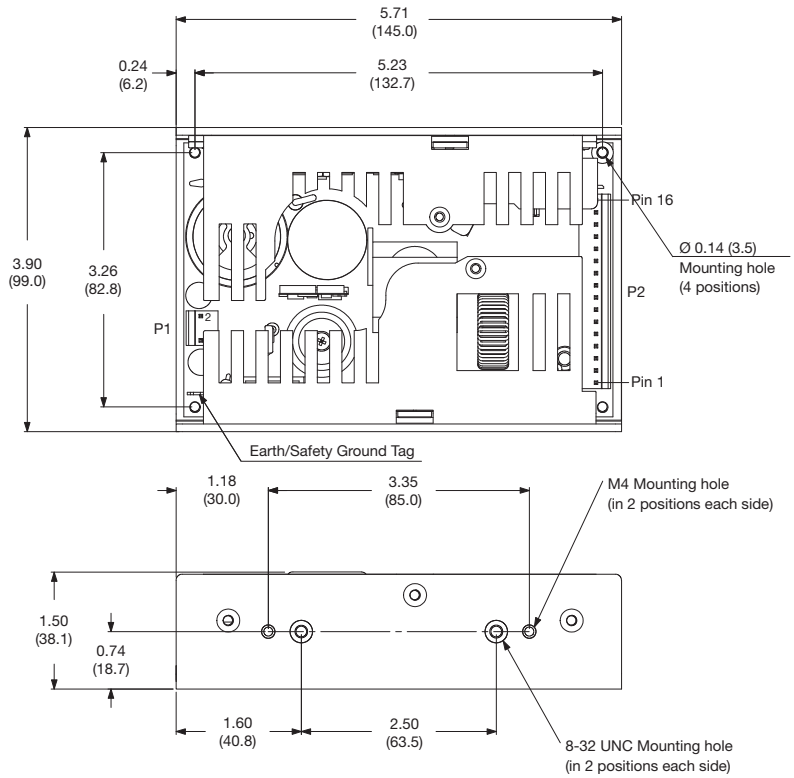


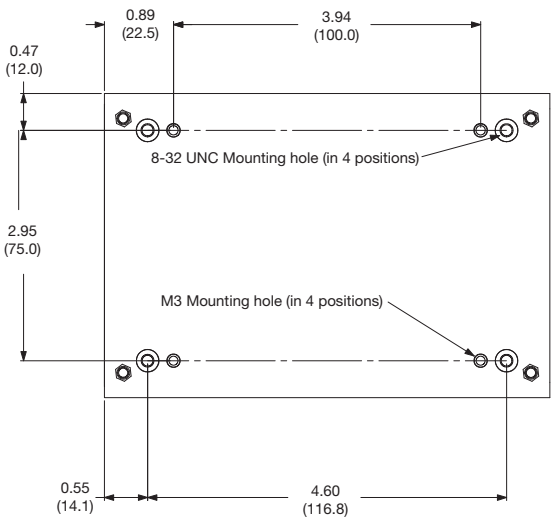


Notes

1. Suitable for class I and class II operation, for class II applications contact sales.
2. All dimensions are in inches (mm)
3. Weight: 1.10 lbs (500 g) approx.
4. Tolerance ±0.02 (0.5)
5. Overall height: 1.36 (34.6).

U–channel



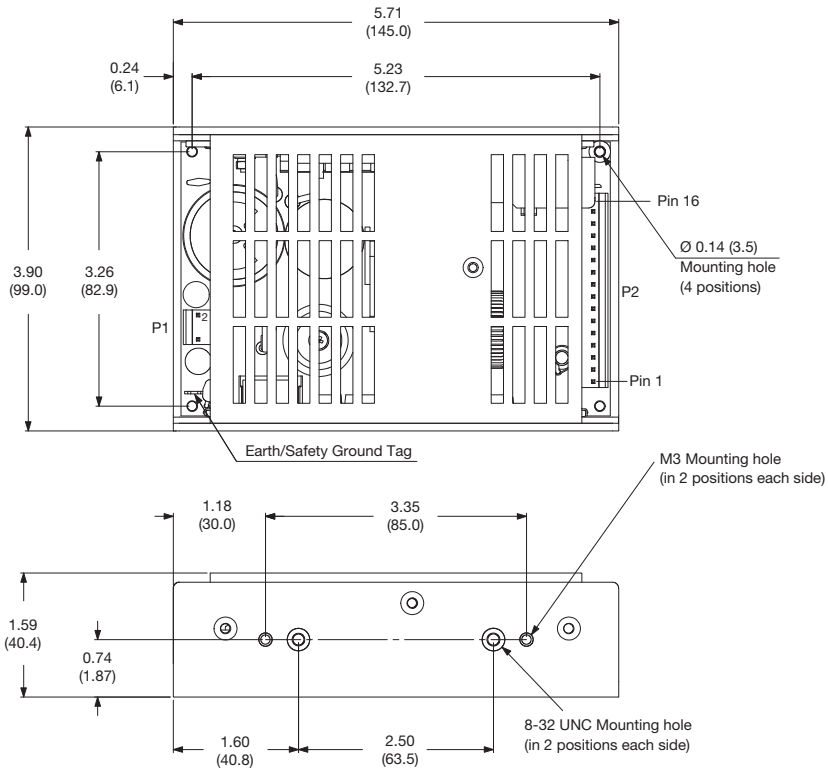


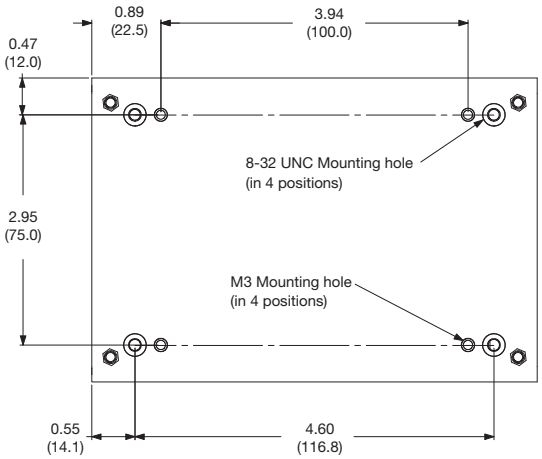
Notes

1. Suitable for class I operation only.
2. All dimensions are in inches (mm)
3. Weight: 1.54 lbs (700 g) approx.
4. Tolerance ±0.02 (0.5)
5. Mounting screws must not penetrate by more than 0.12” (3.0 mm) max

Mechanical Details

U-channel & Cover

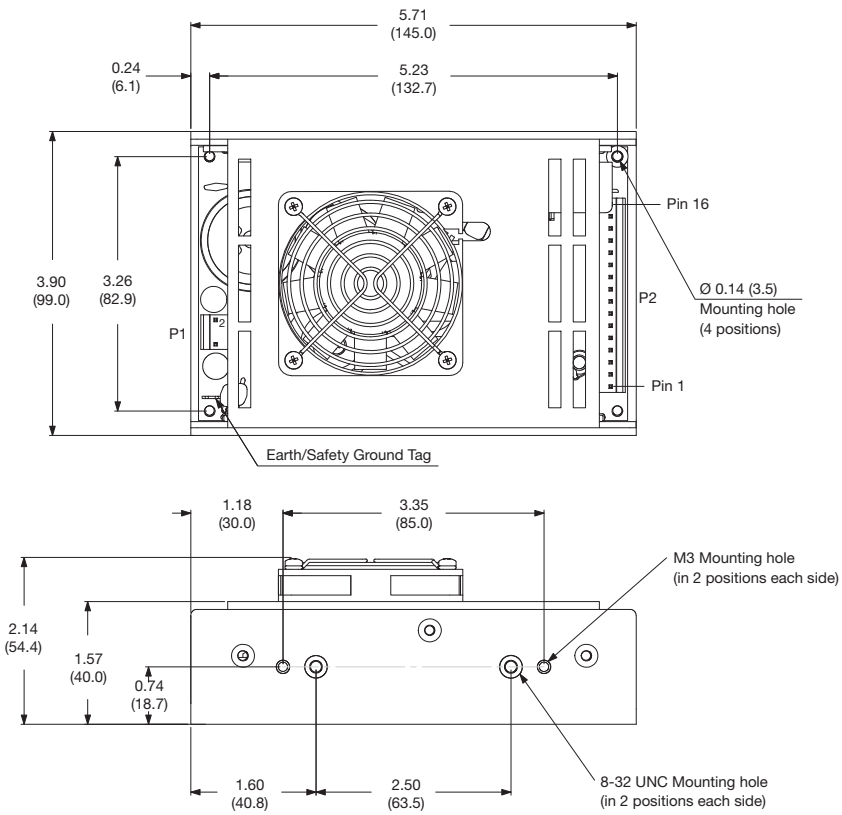


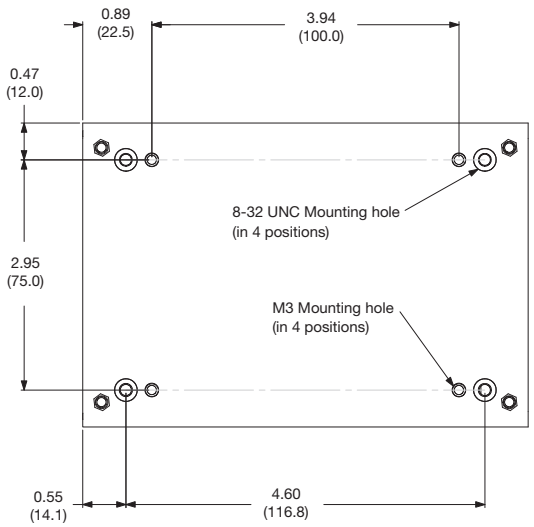


Notes

1. Suitable for class I operation only.
2. All dimensions are in inches (mm)
3. Weight: 1.76 lbs (800 g) approx.
4. Tolerance ±0.02 (0.5)
5. Mounting screws must not penetrate by more than 0.12” (3.0 mm) max.

U-channel & Fan Cover





Notes

1. Suitable for class I operation only.
2. All dimensions are in inches (mm)
3. Weight: 1.98 lbs (900 g) approx.
4. Tolerance ±0.02 (0.5)
5. Mounting screws must not penetrate by more than 0.12” (3.0 mm) max